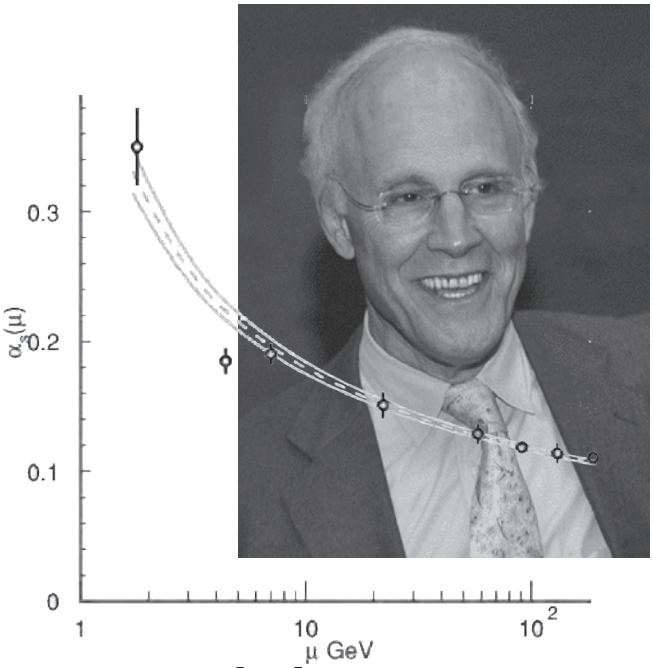
The University of Connecticut
College of Liberal Arts and Science

2152 Hillside Road
Storrs, CT 06269-3046

DEPARTMENT OF
PHYSICS NEWS

Volume II
Issue 1
August, 2010



David Gross, Katzenstein Distinguished Lecturer

Friday, September 24, 2010

Nobel Laureate Professor David Gross of the Kavli Institute for Theoretical Physics at the University of California at Santa Barbara will deliver this year's Katzenstein Distinguished Lecture on Friday, September 24, 2010. In 2004 Professor Gross shared the Nobel Prize in physics with Professor Frank Wilczek of the Massachusetts Institute of Technology and Professor David Politzer of the California Institute of Technology for "the discovery of asymptotic freedom in the theory of the strong interaction".

In his Katzenstein presentation "The Coming Revolutions in Fundamental Physics" Professor Gross will review the present state of knowledge in elementary particle physics and the questions currently being addressed. He will discuss the experimental revolutions that might occur at the largest accelerator ever built, the Large Hadron Collider, which has just come on line at CERN - the European Organization for Nuclear Research in Geneva, Switzerland. He will also review the current state of string theory. The necessity to go beyond the standard model of particle physics and to understand quantum gravity has led to the ambitious attempt to unify all the forces of nature and all forms of matter as different vibrations of a string-like object. But string theory is still in a pre-revolutionary stage. Although remarkable progress has been achieved in the last decade, a fundamental understanding of the theory is still lacking. As Professor Gross will discuss, many string theorists suspect that a profound conceptual change in our view of space and time will be required for the final formulation of string theory.

In 1973 Professors Gross, Wilczek and Politzer discovered asymptotic freedom, a remarkable property of Yang-Mills gauge theories, for which they eventually shared the 2004 Nobel prize. In theories that possess asymptotic freedom, no matter how strong the nuclear force between particles at large separation might be, in extreme proximity these forces must become so weak that the particles then behave as if they were almost free and no longer mutually interacting. With precisely such almost-free behavior having been observed experimentally in deep inelastic scattering experiments conducted at the Stanford Linear Accelerator Center in the 1960s, the work of Professors Gross, Wilczek and Politzer opened the door to the use of Yang-Mills gauge theories in strong interaction physics, while singling out quantum chromodynamics (the theory of interacting quarks and gluons) as the fundamental theory of the nuclear force. Since their seminal work in 1973, the success of quantum chromodynamics in its applications to strong interaction physics has been both breathtaking and unabating, leading to key dynamical developments such as lattice gauge theory, super Yang-Mills theories, and connections to string theory.

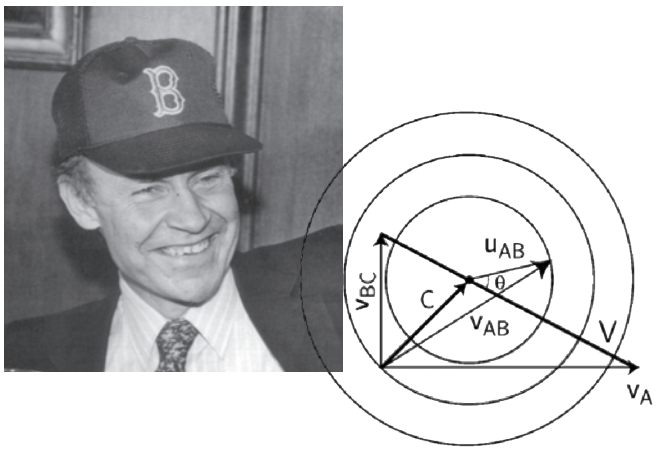
Professor Gross received his bachelor's and master's degrees from the Hebrew University of Jerusalem, Israel, in 1962. With his Ph.D. in physics from the University of California, Berkeley in 1966, he spent three years as Junior Fellow at Harvard University. In 1973 he was promoted to Professor at Princeton University and named Eugene Higgins Professor of Physics in 1986. He assumed the title of Director and holder of the Frederick W. Gluck Chair in Theoretical Physics at the Kavli Institute for Theoretical Physics of the University of California, Santa Barbara in 1997.

Professor Gross has been the recipient of numerous awards and prizes. These include:
Alfred P. Sloan Foundation Fellow, 1970-74
Fellow, American Physical Society, elected 1974
Fellow, American Academy of Arts and Sciences, elected 1985
Recipient, J. J. Sakurai Prize of the American Physical Society, 1986
Member, National Academy of Sciences, elected 1986
Fellow, American Association for the Advancement of Science, elected 1987
Recipient, MacArthur Foundation Fellowship Prize, 1987
Recipient, Dirac Medal, 1988
Docteur Philosophiae Honoris Causa, University of Montpellier, 2000
Recipient, Oskar Klein Medal, Stockholm University, 2000
Recipient, Harvey Prize, Technion - Israel Institute of Technology, 2000
Doctor Philosophiae Honoris Causa, Hebrew University, Jerusalem, 2001
Recipient, European Physical Society Prize in Elementary Particle Physics, 2003
Recipient, Grande Medaille D'Or, Academie des Sciences, France, 2004
Recipient, Nobel Prize in Physics, 2004

Dudley Herschbach, Katzenstein Distinguished Lecture
October 29, 2009

The 2009 Katzenstein Distinguished Lecture, "Molecular Collisions: From 'Warm' to 'Ultracold,'" was delivered on October 29, 2009 at the University of Connecticut by Professor Dudley Herschbach, 1986 Nobel Laureate in Chemistry, Professor of Chemistry and Chemical Biology at Harvard, and Visiting Professor of Physics and Astronomy at Texas A&M University.

First in his family to attend college, and recruited as a football player, Prof. Herschbach earned a B.S. in math from Stanford and a Ph.D. in chemical physics from Harvard. As a beginning faculty member at the University of California at Berkeley, he began "impossible, lunatic fringe" experiments using atomic and molecular beams to study the reaction dynamics of simple chemical reactions between alkali metal atoms and halogen compounds [such as K + HBr →KBr + H], using the conservation of energy, momentum, and angular momentum to understand the observed angular distributions of reaction products. The simple triangular diagram above, which Prof. Herschbach developed [but labeled a "Newton Diagram"], played a key role in this understanding. Prof. Herschbach returned to Harvard in 1963 and by the end of the decade had expanded his horizons to many other types of simple chemical reactions, especially in collaboration with his postdoctoral fellow, Dr. Yuan Lee. In 1986, Prof. Herschbach and



then Prof. Lee shared the Nobel Prize in Chemistry with Prof. John Polanyi for this groundbreaking work on the physics of simple chemical reactions.

Prof. Herschbach has continued his interest in collision dynamics of atoms and molecules, and has extended such studies to lower molecular beam temperatures/energies where the quantum behavior of the colliding species dominates. This work is complementary to the extensive work at UConn with ultracold atoms and molecules in the research groups of Profs. Côté, Eyler, Gould, Javanainen, Smith, Stwalley, and Yelin. Prof. Herschbach's Katzenstein Distinguished Lecture made a variety of connections between the thermal energy "warm" collisions corresponding to his 1986 Nobel Prize and the "ultracold" collisions of great current interest. It was

an engaging talk, not only with frequent insights, but also with considerable humor.

Prof. Herschbach has a great many other scientific and societal interests. His current research also includes (1) theoretical development of an unorthodox dimensional scaling approach to the electronic structure of atoms and molecules; (2) the interaction of molecules with superintense laser fields; and (3) synthesis of methane and other hydrocarbons from wet rocks under pressure and temperature conditions similar to those deep in the earth's mantle. He returned to UConn on February 12 to present the Physics Colloquium on his fascinating dimensional scaling research.

His efforts to enhance science education and public understanding have centered on the Society for Science and the Public, which publishes Science News and conducts the Intel Science Talent Search and the Intel International Science and Engineering Fair. He has had many radio and TV appearances, including as a guest voice on The Simpsons. He is a life member of the Friends of Franklin and of the Sierra Club, and for many years chaired the Hans Bethe Center for Arms Control and Nonproliferation.

Thomas Cravens, 4th Annual Edward Pollack Distinguished Lecture

April 9, 2010

Professor Thomas Cravens, from the Department of Physics and Astronomy of the University of Kansas (Lawrence, KS), presented the Edward Pollack Distinguished Lecture in the Department on April 9, 2010. These lectures have been endowed by family and friends of the late Edward Pollack, a department faculty member and advisor to many graduate students for over 40 years. Professor Pollack's wife Rita and two daughters Cindy and Lois were on hand for the occasion.

The topic, related to Dr. Pollack's long time research collaboration with Jet Propulsion Laboratory (JPL) on x-ray emission from comets and other solar-system objects, was "Titan and Enceladus as Revealed by the Cassini Mission to the Saturn System." Prof. Cravens, a Summa Cum Laude graduate of SUNY-Stony Brook, with a Ph.D. in Astronomy from Harvard, is well known for his research on how solar radiation and the solar wind interact with planets and comets. He is a member of the science team for an onboard experiment in the Cassini spacecraft which has been orbiting Saturn and its moons.

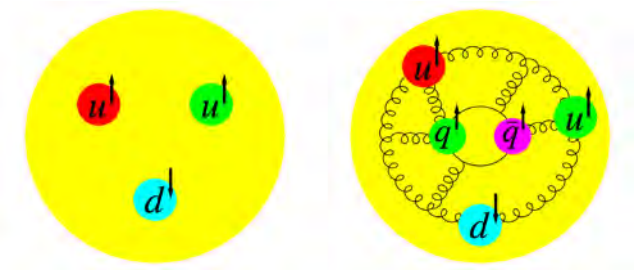
To quote from the abstract from this year's Pollack Lecture: *The Huygens probe landed on Titan's surface in January 2005 while the Cassini Orbiter with its many instruments continued to study the Saturn system with its many satellites and its rings…Titan is the largest satellite of Saturn and has a dense atmosphere whose main constituents are nitrogen and methane. Solar and x-ray radiation, as well as energetic plasma from Saturn's magnetosphere, interact with the upper atmosphere producing an ionosphere. The highly coupled ionosphere and upper atmosphere system mediates the interaction between Titan and the external environment. Enceladus is a much smaller moon—only 504 km across. Its icy surface has crevices in the southern hemisphere, from which a plume emanates.* [One of the instruments aboard is the Ion and Neutral Mass Spectrometer.] *The INMS determined that the plume atmosphere mainly contains water but some carbon dioxide, carbon monoxide, and nitrogen gases are also present. The INMS and other Cassini instruments also studied the plasma environment, or ionosphere, associated with the plume of Enceladus. The plume ionosphere strongly interacts with Saturn's magnetosphere, affecting the ion composition and distorting the magnetic field near Enceladus.*

Professor Cravens was the first to suggest that the unexpected soft x-ray emission from comets, first seen by the Rosat satellite when Comet Hyakutake approached the sun in 1996, was due to keV-energy electron-transfer collisions between comet atmosphere molecules such as CO and H_2O and highly-charged minority ions from the solar wind [C^{6+}, O^{7+}, Si^{8+}, etc.]. Since the first observation, peak x-ray power of about one billion watts has been detected using space-based observatories for many comets as they approach the sun with a distance of closest approach within the earth's orbit. For many years Ed Pollack studied related charge-exchange collisions in the laboratory with his students, never dreaming that this basic research would also apply to comets and the solar system. Profs. Kessel and Smith have continued this line of research recently, in collaboration with JPL and inspired by Cravens' work. A recent graduate student who worked on these problems, Dr. **Ken Miller** (Ph.D., UConn, 2008), is now on a post-doc involved with similar "laboratory astrophysics" work at the Columbia University Astrophysics Laboratory.

The Spin Structure of the Proton: New Approaches to Old Questions

Just like electrons, protons carry one half unit of internal angular momentum known as spin. According to the so-called 'naive quark model' the proton is made of 2 up- and 1 down-quark, with two of the quark spins paired to zero so that the proton's spin simply reflects the spin of the unpaired quark. What is so naive about this picture? It neglects the orbital angular momentum of the quarks. From Heisenberg's uncertainty principle we know that quantum particles confined inside a region as small as the nucleon must have large momenta. Relativistic models predict that about 65% of the proton spin is due to the quark spins, and the rest comes from quark orbital angular momentum. Even this improved picture is still naive. In the full field-theoretical treatment in quantum chromodynamics (QCD), the proton must be viewed as 3 (up, up, down) valence quarks exchanging gluons, which produce quark-antiquark pairs, which in turn exchange gluons, so gluon spins may also contribute. So far no one has managed to compute it from first principles in QCD, but recent experiments at Brookhaven National Laboratory, Long Island indicate that the contribution of the gluon spin to the nucleon spin is very small, perhaps negligible. So where does the nucleon spin come from?

A significant portion of the experimental program at the Thomas Jefferson National Laboratory (JLab), Newport News, VA, is devoted to experiments which address this question. At JLab a 6 GeV electron beam of unprecedented luminosity is currently available, and an upgrade to 12 GeV beam energy is in progress. Electrons interact with protons through the electromagnetic force which is mediated through the exchange of virtual photons. High energies are needed to produce virtual photons with a short enough wavelength to resolve objects much smaller than a proton, i.e. individual quarks. When the virtual photon strikes a quark inside the proton, it cannot knock it out directly as it does the electron in the photoelectric effect. Instead the struck quark emerges from the proton in the form of one or more mesons, such as pions or kaons. By focusing on reactions where only one new particle is produced, one can access information about the spatial distribution of quarks in the proton. Reactions where many new particles are produced yield complementary information about the transverse momenta of quarks in the nucleon. Together these two pieces of information can be used to form a complete tomographic image of the quark and gluon structure of the proton, and answer the old question regarding its spin.



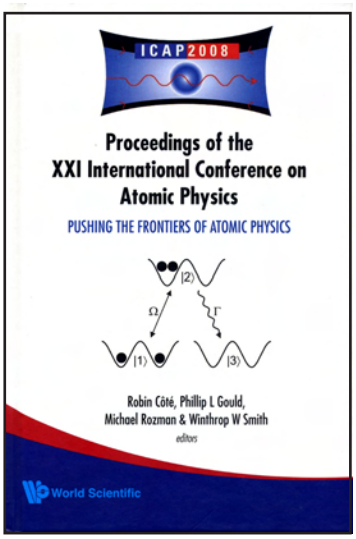
The naïve (left) and the more realistic (right) picture of a nucleon.

The physics outcome of these and related experiments is so promising that the JLab 12 GeV upgrade is one of the highest priority future U.S. nuclear physics goals, according to the Long Range Plan published by the Nuclear Science Advisory Committee. The Particle and Nuclear Physics Group at UConn is strongly involved in the JLab physics program. Professor Kyungseon Joo and his students are involved in the experiments. Professor Peter Schweitzer provides theoretical support for the planning of experiments and interpretation of the results.

APS Awards go to UConn Physicists

The American Physical Society (APS) initiated a highly selective award program to recognize scientists who have been exceptionally helpful in assessing manuscripts for publication in APS journals. The Outstanding Referee Award program recognized 360 referees (out of 42,000) for the Outstanding Referee designation in 2009, its second year; 130 will be honored annually in the future. Congratulations to Ralph H. Bartram and George Gibson, the two UConn faculty who have just received this lifetime award.

ICAP 2008 Conference Proceedings Book is Published



The August 2008 Newsletter reported on the 21st International Conference on Atomic Physics held in Storrs July 27-August 1, 2008. Approximately 600 physicists from around the world attended the 50 invited talks and three poster sessions, including talks by five Nobel Laureates: Steven Chu (Lawrence Berkeley National Lab and now U.S. Secretary of Energy), Eric Cornell (Univ. of Colorado-Boulder/JILA/NIST), Roy Glauber (Harvard University), William Phillips (Univ. of Maryland/NIST) and a public lecture by Wolfgang Ketterle (MacArthur Professor of Physics, MIT). The conference was very well received.

The book of proceedings, subtitled "Pushing the Frontiers of Atomic Physics," was published in the spring of 2009 by World Scientific publishers. It includes invited articles from many leading researchers in the field of AMO physics, including Chu, Cornell and Glauber. The book was edited by **Robin Côté**, **Phillip Gould**, **Michael Rozman** and **Win Smith** (371 pp.). It can be accessed online at http://www.phys.uconn.edu/icap2008/.

The Norman Hascoe Lectures on the Frontiers of Science

The Department of Physics has completed its eleventh and twelfth years of a lecture series on topics related to nanoscale science funded by the late Mr. Norman Hascoe of Greenwich, Connecticut. This series is open to the public but is intended to excite undergraduates into pursuing their scientific interests. The lecture is followed by a reception and an informal panel discussion. The talks presented in 2009 and 2010 academic years:

- Claude Cohen-Tannoudji, École Normale Supérieure (Paris) (Nobel Laureate), "Manipulating Helium Atoms. From Optical Pumping to Bose-Einstein Condensation"
- Gerard Meijer, Department of Molecular Physics, Fritz Haber Institut, Berlin, Germany, "Taming Molecular Beams"
- Nigel Goldenfeld, University of Illinois at Urbana-Champaign, "Statistical Mechanics of the Genetic Code: A Glimpse of Early Life?"
- Sara Majetich, Carnegie-Mellon, "Seeing and Moving Magnetic Nanoparticles"
- Dan Botez, U of Wisconsin,-Madison, "Intersubband Quantum-Box Semiconductor Lasers"
- Manuel deLlano, Universidad Nacional Autonoma de Mexico, "Generalized Bose-Einstein Condensation and Superflow"
- Ken Merz, U of Florida, "Much Ado About Quantum Chemistry: Protein/Ligand Structure Refinement Using Quantum Chemistry"
- Klaus Molmer, Aarhus Universitet, "Quantum Computing - How Far Have We Come, And Where Will We End?"
- Christoph Neidermeyer, Laboratory for Neutron Scattering (LNS), Paul Scherrer Institute, "What Can Muons Tell Us About Condensed Matter" and "Applications of Neutron Scattering Techniques In Condensed Matter Research"
- Jens-Uwe Grabow, Universität Hannover, "Rotational Spectra: Molecules Telling Us Their Secrets"
- Alán Aspuru-Guzik, Harvard University, "Quantum Computing for Chemistry"

Nanoscale science involves application of the concepts and techniques of physics to systems at a higher level of complexity (e.g. the supramolecular and macromolecular) and is the focus of major federal research funding initiatives. Advances in nanoscale science are being made in many disciplines.

AAPT Award to Mario Belloni

The American Association of Physics Teachers (AAPT) announced in March that **Mario Belloni** was the recipient of the 2009 AAPT Excellence in Undergraduate Physics Teaching Award. Belloni is Associate Professor of Physics at Davidson College. This award is in recognition of contributions to undergraduate physics teaching and awardees are chosen for their extraordinary accomplishments in communicating the excitement of physics to their students. Dr. Belloni earned his Bachelor of Arts in Physics and Economics at at the University of California, Berkeley. He received his Masters and Ph.D. degrees in Physics at the University of Connecticut, where he worked under the late Professor **Kurt Haller**.

The prestigious award was presented to Belloni during the AAPT Summer Meeting in Ann Arbor, MI where he presented a paper. Lila Adair, Awards Committee Chair, said, "At Davidson College Mario Belloni is well known as an author, public speaker, researcher, workshop leader, motivator of students, award winning professor, and an innovator in the use of technology for teaching. For his outstanding achievement in teaching undergraduate physics, the AAPT Awards committee is pleased to present to him the Excellence in Undergraduate Physics Teaching Award."

Sigma Pi Sigma Inductees and Events

The Sigma Pi Sigma festivities for 2009 were held on Friday, May 1st. This physics honor society, founded in 1921, serves to recognize outstanding promise and scholarship in physics. Each year we induct high-performing undergraduates into the society, along with some graduate students and faculty who have not been inducted previously, usually because they come from an institution that does not have a chapter in the society. The celebration includes a colloquium from an outstanding scientist selected and invited by the Society of Physics Students (the undergraduate physics club), a selection of discussion and lab tours for the students and the guest speaker, and a banquet where the nominees are formally inducted.

Our speaker on May 1, 2009 was Dr. Jill Tarter, Director of the SETI Institute (Search for Extra-Terrestrial Intelligence). Dr. Tarter is a prominent astronomer, the recipient of many prizes including two public service medals from NASA, a fellow of the AAAS, and one of Time Magazine's 100 most influential people of 2004. She is also noted for being the inspiration for the character Jodie Foster played in the movie "Contact" and the one-time supervisor of our own Professor George Gibson when he was a high school summer student intern at NASA. Her talk was titled "Are We Alone?" and described the search for signals originating from intelligent beings and other radio astronomy being performed at the new Allen Telescope Array in Hat Creek, California.

The 2010 Sigma Pi Sigma lecture was given by Professor Brice Cassenti (UConn Mechanical Engineering) on April 30th, and was a great success. Brice gave a fascinating talk entitled "Feasibility of Robotic Investigations of Extra-Solar Planets." His passion for space exploration was evident. An expert on propulsion, he explained the advantages of various systems, from chemical rockets to ones powered by nuclear explosions and nuclear fusion, that might be used for interstellar space flight. Unfortunately, huge resources are needed to power even an exploratory craft to the nearest, possibly habitable, planet outside our solar system (about 10 light years away). Professor Cassenti also welcomed help from interested physicists, especially in the area of theoretical nuclear and particle physics.

After the talk current and past members of SPS, faculty, staff, and alumni joined the speakers for a friendly, lively banquet, emceed by David Markowitz, ably aided by Tom Blum and Barry Wells.

Other achievements of our students are noted at the Sigma Pi Sigma lecture. The Katzenstein Prize for 2009 was awarded to Amy Soto (see separate article). The 2010 Katzenstein Prize for best physics paper by a senior was awarded to Mitchell (Woody) Underwood, for his honors thesis paper on "Design of Electronics for a High Energy Photon Tagger for the GlueX Experiment." This work was undertaken under the direction of Professor Richard Jones. Woody was also initiated to Phi Beta Kappa last year. The American Association of Physics Teachers Teaching Assistant prize was awarded to graduate students J.C. Sanders and Brad Moser in 2009.

Greg Petropoulos and Michael Abramczyk were named University Scholars for 2009-10 and elected to Phi Beta Kappa; Michael won a Goldwater Scholarship (a federal government award to encourage excellence in science, math, and engineering), and Greg and Michael each earned the prestigious and lucrative Department of Energy Graduate Fellowship. Beginning in the fall of 2010 Greg will be a Ph.D. student in Physics at the University of Colorado and Michael will be a Ph.D. student at Columbia University. In 2010, two physics graduates, Timothy Dobbs and Derek Horkel were elected to Phi Beta Kappa. Kaitlin Harley was named a "UConn Outstanding Senior Woman" in 2010. Kaitlin won this recognition partly due to her broad cross disciplinary interests and success; she was a double major in Physics and English and a double minor in French and Classics and Ancient Mediterranean Studies, and also graduated from the Honors Program. The inductees into Sigma Pi Sigma for 2009 were: undergraduates Michael Abramczyk, Jordon Adams, Ryan Duve, Chris Pelletier, Joseph Power, Kevin Romeo, Charlie Talbot, and David Thieken, graduate student Manuel Mai, and new faculty member Menka Jain. New undergraduate members for 2010 were Michael Flanagan, Mallory Guy, Derek Horkel, Marisa MacDonald, Sean Meehan and Atif Rakin. Congratulations to all of our degree recipients. Please come back and visit us in the future to tell us about your life post-UConn. Everyone is also invited to next year's Sigma Pi Sigma events; please put them on your calendar now!

Goldwater Scholarship

Physics major and University Scholar Michael Abramczyk won a Goldwater Scholarship for his senior year (2009-10). These prestigious awards, established in 1986 by Congress to honor Barry M. Goldwater and to "... provide a continuing source of highly qualified scientists, mathematicians, and engineers by awarding scholarships to college students who intend to pursue careers in these fields," were made to 278 of 1097 applicants nationwide this year. Michael was one of three students chosen by UConn to compete at the national level. Michael, who won honorable mention last year, had been working with Professor Tom Blum in particle physics in the area of quantum chromodynamics and charge-conjugation/parity violation. His proposed Goldwater research is to study a new "Chiral Magnetic" effect, possibly observed at the Relativistic Heavy Ion Collider at Brookhaven National Lab, using lattice gauge theory techniques. The effect, if confirmed, marks the first time that scientists have directly observed topological features of the gluon fields (instantons) in experiment.

A Father, a Physicist, Tragedy, and Time Travel

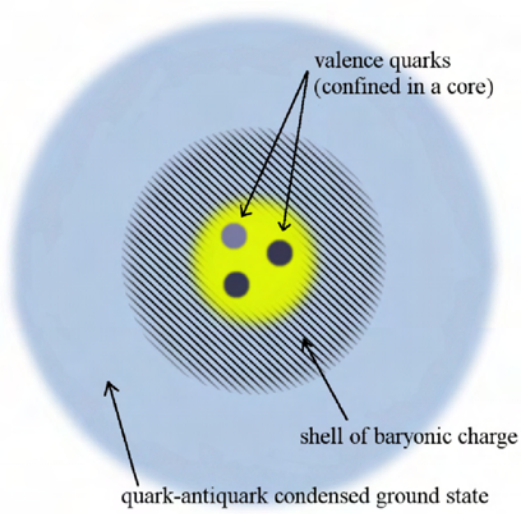
Growing up in New York City in the 1950s, Ronald Mallett idolized his father, a television repair man and amateur inventor who sparked young Ron's curiosity about the world. "He was the most important thing in my life, my entire universe," Mallett recalled in an NPR interview in 2007.

Tragically, Mallett's father died suddenly at the age of 33 from a heart attack, devastating 10-year old Ron. Shortly after that loss, however, a comic book adaptation of HG Wells' classic *The Time Machine* inspired Ron and set him on a life-long quest: if time travel was possible, he would build a time machine and warn his father about his heart condition. Despite the barriers African-American students faced at the time, he eventually earned a Ph.D. in physics from Penn State University and became a tenured faculty member at the University of Connecticut. Over the years, while Mallett engaged in research into black holes, general relativity and other facets of theoretical physics, he quietly kept working on the concept of time travel and he received support from NSF for this work. Eventually he published a paper that, building on the work of Einstein and others, raises the possibility of using light to bend time.

While the theory remains untested and controversial, it marks a significant advance in the field. Meanwhile, Mallett has published a memoir about his life-long quest entitled *Time Traveler: A Scientist's Personal Mission to Make Time Travel a Reality*, and director Spike Lee has acquired the rights to make a film version of the book. While he knows he will probably never realize his time machine, Mallett is still contributing to physics, a testament to his father's influence and love.

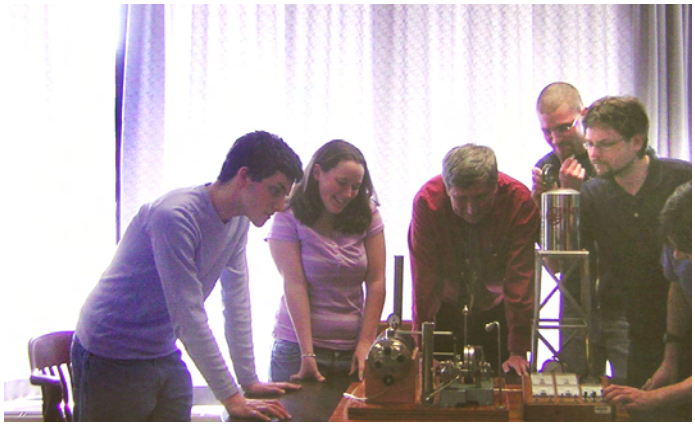
By Dana William Cruikshank, June 2009 National Science Foundation Current Newsletter (sent to members of Congress, their staff and NSF news subscribers)

A Very Large Machine to View a Very Small Particle



Dr. Richard Luddy of the Physics Department (UConn Ph.D, 2006) gave an invited talk at the International Conference on Elastic and Diffractive Scattering held at the European Center for Nuclear Research (CERN), Geneva, June 29 - July 3, 2009. He presented his collaborative work with Research Professor Munir Islam of the Physics Department, Research Staff and Doctoral Student Jan Kaspar of CERN, and Post-doctoral Fellow Alexei Prokudin of the University of Torino (IKLP Group). The title of Richard's talk was: Proton-Proton Elastic Scattering at LHC and Proton Structure. At the Large Hadron Collider (LHC), a 7 TeV proton will hit head-on another 7 TeV proton and elastic proton-proton scattering will be measured by the TOTEM (TOTal Elastic and Diffractive Measurement) Group at the unprecedented center-of-mass energy of 14 TeV. They will test the predicted elastic differential cross sections by the IKLP Group against their experimentally measured values. It will demonstrate how well the proton structure as viewed by the IKLP group (figure next to LHC picture) is borne out.

Gifts to the Department



Working with the Hascoe steam engine from left-to-right are shown Derek Horkel (Class of 2011), Sarah Lamb (Class of 2010), Dr. William Stwalley, Ryan Duve (Class of 2009), and Physics graduate students, Chris Sanborn and Ryan Carollo.

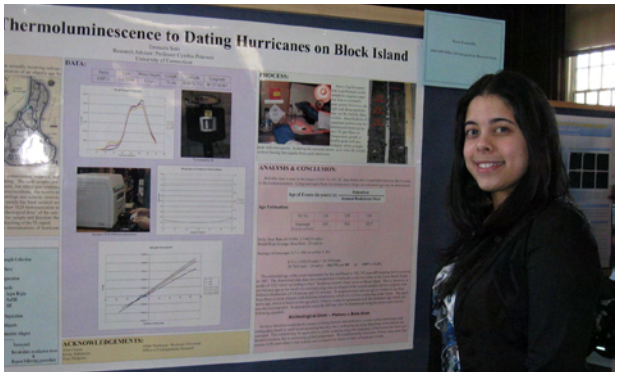
Norman Hascoe, a longtime benefactor of the department and the university, passed away in October 2008. Mr. Hascoe had an avid interest in science, engineering, math, and sharing his knowledge and enthusiasm with others. He was the proud owner of a Model #51 Jensen Steam Engine which he donated to the Physics Department. The engine provides a truly memorable visual display of the principles of thermal, electrical or mechanical energy generation and transmission. Some of its features include a novel A/C-D/C generator, meter banks for low voltage A/C and D/C production and high voltage boiler heater controls and switches. The model also demonstrates various voltage outputs and shows "real world" operating dynamic factors such as the increased BTU requirements during peak load demands. Our physics and engineering majors will enjoy learning from demonstrations of the Jensen steam engine.

The Hascoe family also donated his extensive collection of books to the University. They cover a wide range of topics, reflecting the interests of the person who owned them. Each book in The Norman Hascoe Science Collection contains a bookplate not only acknowledging his generosity but providing an accurate concise description of the man. "A brilliant engineer, an inventor, a man of science who saw things in ways others could not."

Professor Kurt Haller (5/6/1928-5/5/2004) joined the Department of Physics in 1964 and served us exceedingly well as a professor of physics, as acting department head (on three occasions) and as the Associate Department Head for Graduate Education and Research. Professor Haller was dedicated to his research, his students and his profession. His research work earned him many distinctions and honors, among them a Festschrift on the occasion of his 70th birthday, containing contributions from 28 physicists from around the world and published as three volumes of the physics journal Foundations of Physics. He was a man of great generosity of spirit and the highest intellectual integrity. He was always well informed on world events and was able to see an issue from all sides.

Kurt was born in Vienna, and came to the United States at the age of ten, leaving behind the violence and terror that prevailed in Austria during the 1930s. His mentor, a physician aunt, Jetti Katz, ran a medical diagnostic lab in New York and steered him to Columbia College where he earned his A.B. degree in 1949. There, he met and took a course with Polykarp Kusch, Nobel Laureate 1955. With an A in the course, he then completed his graduate studies in physics and received his Ph.D. in 1958. After a postdoctoral appointment at Washington University, St. Louis, he joined the faculty of the Physics Department of New York University. In 1964, he accepted a faculty position at the University of Connecticut. Kurt's wife, Lottie Haller, gave our department an etching of Einstein in memory of Kurt and his warm relationship to us. Kurt's aunt presented him with the etching of Einstein as a gift in the mid 1960s when he and Lottie moved into their home in Storrs. It meant a lot to them.

Katzenstein Prize 2009



Amy Soto graduated with honors in Physics on May 10, 2009. Her honors essay won the 2009 Katzenstein Prize for the best research paper by a graduating senior in physics. Her thesis work, completed under the supervision of Prof. Cynthia Peterson, "Thermoluminescence Dating of Hurricanes on Block Island" delineated the application of thermoluminescence as a tool to date bleached beach sand blown into Great Pond, Block Island during an identified hurricane event; the sand was subsequently buried by later deposits until retrieved in a sampling core by scientists at Wesleyan University. After suitable sample particle size selection, magnetic separation, appropriate chemical etchings and heavy liquid separation into feldspar and quartz portions, samples were irradiated with known ^{137}Cs doses and thermally stimulated to measure luminescence, which can be interpreted in terms of burial ages using environmental dose rates. This work is an important demonstration that TL dating may successfully be applied to pond sediments that have been exposed to an initial bleaching event and then deposited as a result of climate or geologic events such as hurricanes or earthquakes. It leads to the possibility of accurately dating pre-historic hurricanes, and uncovering the long range relation between hurricane frequency and global warming.

Ryan's Road

As an undergraduate physics major, I had done two years of work for my research advisor Susanne Yelin, a theoretical physicist. I favored theory but did not rule out experimental physics at the University of Virginia this fall. With help from Kyungseon Joo, my former physics professor, I spent the summer at Sogang University in Seoul, doing work under Professor Hyeonsik Cheong. Professor Cheong works with graphene, a new icon in condensed matter physics. It is a flat sheet of carbon, one atom thick, with remarkable electronic and mechanical properties. At Sogang, I was trained to make graphene and to "bend" the two dimensional sheet and analyze it using a laser technique called Raman spectroscopy. During my short time in Korea, I created Raman-usable graphene, I attended a week-long graphene workshop at Korea University, and I designed and built a patentable graphene synthesis machine. Funded by Kyungseon Joo and William Stwalley, the UConn physics department head and by Hyeonsik Cheong's provision of accommodations, with inspiration from the optoelectronics groups at Sogang, I am wonderfully prepared to choose my future research path.

Ryan Duve is currently a graduate student of the department of physics at the University of Virginia, Charlottesville, VA. UConn recently signed MOUs for the international student exchange program with two top Korean universities, Sogang University and Yonsei University, both of which are located at the heart of Seoul, named Shinchon, a vibrant area full of young college students. UConn has offered $1,000 scholarships for the first three physics major students who participate in this study abroad program with one of these two universities.

Visit of Professor Eric Adelberger

The distinguished experimental gravitational physicist Professor Eric Adelberger of the University of Washington visited our Department on Thursday, February 26 and Friday, February 27 as a 2009 Phi Beta Kappa national honor society visiting scholar. His primary presentations were a public lecture on Thursday, "Short-distance gravity: from Newton to Einstein to Strings," and a physics colloquium on Friday, "Testing Einstein's Happiest Idea."

As part of the Phi Beta Kappa visiting scholar program Professor Adelberger engaged in a variety of activities. He led classroom discussions in three physics major classes on Thursday: Physics 4300 "Dark matter: extra particles or extra forces?", and Physics 2300 and 1601 "Our modern view of inertial coordinate systems."

On Friday, Professor Adelberger joined our physics majors for a physics club pizza lunch. Later that day he met with our graduate students in the Physics Library.

In all it was a highly successful visit, for the support of which the Physics Department is very much indebted to the national Phi Beta Kappa honor society.

Arrivals/Departures

Carol Artacho Guerra left our department on July 15, 2010 to accept a position on the science faculty at the Ethel Walker School in Simsbury, Connecticut. Carol has been the director of the Teaching Labs in our department since 2004. She has been in charge of overseeing the laboratory courses for introductory classes, with responsibility for the content and equipment of the labs and supervision of teaching assistants. During her time here, Carol rewrote several of our laboratory manuals and worked with Professor Wells and grad student Drew Chieda to carry out a complete overhaul of the laboratory portion of our initial introductory physics class for majors, Phys 1600 (previously Phys 140). Carol also spearheaded many of our department's outreach activities. These include visiting area schools with a physics demo show, (with emphasis on loud liquid nitrogen experiments), and judging at the Connecticut Science Fair. Carol created and ran the UConn Physics Olympiad. At this event, Connecticut schools form physics teams that come to UConn for a day in the spring and compete to perform physics related tasks with the best results. The event has been lots of fun and a runaway hit with schools.

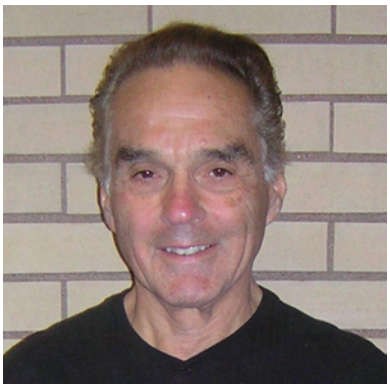
In addition to her interest in physics and teaching, Carol is an avid Salsa dancer. She was able to combine all of these activities by offering a First Year Experience course called "The Physics of Salsa." This course allowed students to experience Newton's Laws and angular momentum through movement and dance, while also learning a Salsa dance routine, which they demonstrated at the end of the semester. She was presented with the 2009 First Year Experience Teacher of the Year award in recognition of her talents. Carol is also involved in community-based dance events, such as a recent performance of Alice in Congaland at the Wadsworth Atheneum Theater in Hartford.

We wish Carol the best of luck at Ethel Walker and hope to see her around the department from time to time.

We are delighted that Dr. Subhas Ghosal joined us in March 2009, after a postdoctoral visit in the group of Prof. Jeremy Hutson at the University of Durham (UK), where he held a Fellowship from the Royal Society. At that time, he also collaborated with Prof. Christiane Koch in Berlin, where he investigated the possibility of forming deeply bound polar ultracold molecules (particularly RbCs) by two-color photoassociation, using a time-dependent wave packet (TDWP) approach. Dr. Ghosal received his Ph.D. in 2007 at the Hyderabad Central University (India) in Theoretical Chemistry, under the supervision of Prof. Susanta Mahapatra, where he worked on "Nonadiabatic wave packet dynamics of Cl(2P) + H_2 (HD) reaction." In the group of Prof. Robin Côté he now works on ultracold molecule formation and scattering properties.

Nicole Hryvniak left her position as Program Assistant in Physics to take on new duties at the Department of Geography, also in the College of Liberal Arts and Sciences. Nicole handled graduate admissions and records and administered the undergraduate program for the department. We wish her a productive future in her new position.

The particle theory group is very pleased that Dr. Tomomi Ishikawa joined the Physics Department as a postdoctoral fellow in Fall 2009. Dr. Ishikawa comes to us from the RIKEN BNL Research Center at Brookhaven National Lab where he worked in the area of lattice gauge theory. Before that, he worked at the University of Tsukuba in Japan after receiving his Ph.D. from Hiroshima University (2002). Tomomi's recent research has focused on the calculation of weak interaction matrix elements in the B-meson (heavy b-quark+light quark) system that are important for charge-conjugation/parity (CP) violation studies in the Standard Model (SM) of particle physics. Since CP violation arises from a single complex phase in the Cabibbo-Kobayashi-Maskawa paradigm of the SM, it is highly constrained, and therefore provides fertile ground to search for new physics beyond the SM as particle physics enters the large hadron collider era. He is also interested in the formal aspects of gauge theories.



Professor Manuel de Llano, Professor of Physics at the Universidad Nacional Autonoma de Mexico in Mexico City, spent his sabbatical year (March 2009-February 2010) as a Visiting Scholar in the UConn Physics Department. He is well known for his research on many-body physics, including nuclear, condensed matter, cluster and nano-physics, as well as his activities in promoting international collaborations and cooperation.

Prof. de Llano began his visit with an inspiring lecture "Generalized Bose-Einstein Condensation and Superflow" as part of the Hascoe Distinguished Lecture Series. He then provided a more detailed and comprehensive series of five lectures elaborating his generalized BEC theory with discussions of superfluid helium, superconductivity, and quantum degenerate Bose and Fermi gases. The Department is looking forward to future interaction and collaboration with Dr. de Llano.

Professor Lawrence (Larry) Kappers (aka "Kap") retired in 2009, having joined the UConn Physics Department in 1973. After receiving his Ph.D. from the University of Missouri-Columbia and completing postdoctoral appointments at the University of Minnesota and Oklahoma State University, he developed an active research program in the optical and ESR spectroscopy of color-centers in inorganic insulators. Larry later became interested in the optical properties of 3d ions at high pressure and developed a diamond-anvil cell to complete the spectroscopic measurements. He is especially proud of his service to the department as director of the Perkin-Elmer Program, which led to a Masters degree in Physics with a concentration in optics, and also his involvement with the collaborative program between the physics department and the Institute for Crystal Physics in Budapest, Hungary. Larry continues his productive research contributions with a project funded by Radiation Monitoring Devices, Inc. on the luminescent properties of scintillator materials.

Larry's wife, Jean Kappers retired from UConn in 1997 where she did administrative work in the School of Business. Both Kappers are devoted fans of UConn women's basketball. For years they have traveled to away games to assist in the cheering. Like some of the characters in the movie "Fargo," the Kappers hail from the upper midwest, which you can tell sometimes when they speak spontaneously.

Terry Kennedy decided to retire in 2009 after 31 years of service to UConn, all of it in the Physics Machine Shop! Terry was hired by Joe Budnick back in 1978 and contributed to the success of all the experimentalists in the department, including Phil Gould, Quentin Kessel, Boris Sinkovic, Bill Hines, Phil Best, George Gibson, and many others. He also aided the teaching mission of the department by building demonstrations and equipment for the teaching labs. Over the years, Terry guided and mentored many graduate students in the art of designing and fabricating parts for a great variety of experiments. He also contributed to several international collaborations. As chair of the shop committee, Prof. George Gibson had the chance to work with Terry on many issues, including safety, organization, shop policies, and mentoring; "I learned a lot from Terry and value the time we worked together." Although Terry has retired, he shows no indication of slowing down, as his list of retirement projects just keeps getting longer! Terry has taken up gardening which makes his wife Louise happy – as long as he remembers which plants are the flowers so he doesn't step on them. We hope to occasionally see him around the department.

Professor Douglas Pease (retired, 2009) earned his Ph.D. (UConn '72) in x-ray studies of electronic structure under the mentorship of Leonid Azaroff, the first Director of the Institute of Materials Science. Doug joined the physics faculty in 1978. During his career, he pursued a broad range of topics in x-ray physics, including the development of a novel log spiral detector which made possible the studies of local environments of neighboring elements, not directly possible by existing techniques. Doug focused on a number of challenging projects including high temperature strain studies carried out in cooperation with engineering faculty and students. His work on fundamental aspects of near-neighbor interactions in alloys and oxides has been of great importance and well received. His students have benefited greatly from his mentorship and their experience working with him at the National Synchrotron Light Source. Two of them now contribute to novel research at the Advanced Photon Source at Argonne National Laboratory. Doug has enjoyed his interactions and cooperative research with a number of exceptional people including Dale Sayers, Ed Stern, Farrell Lytel – the original developers of the modern approach to EXAFS studies and analysis. His present work on oxides benefits from his active collaborations with a number of researchers, especially Anatoly Frankel.

Throughout his career, Doug's dedication to his students

and to teaching physics was clear. His innovative teaching methods – he used music to help students remember laws and formulas – made physics "visual, kinesthetic and experiential" for students with "no interest or expectation" of learning physics. Doug was instrumental in the re-development and success of the High School Cooperative Education Program in Physics, now known as Early College Experience (ECE), making it one of the best programs in UConn's ECE, known for its committed, proactive instructors and standards of excellence in NACEP (National Alliance of Concurrent Enrollment Partnerships) accreditation.

Doug sang, played guitar, and played harmonica with a folk group. Once, after retrieving his harmonicas from his car, Doug played an unrehearsed back-up set with the featured performer at the Bee and Thistle, who happened to be missing his regular harmonica player at the time.

George Rawitscher is a scientist, a humanist, and a multi-lingist. His birthplace was Freiburg, Germany, and he moved with his parents to Brazil in 1934. His degrees in physics were a B.A. from the University of Sao Paolo, Brazil and a Ph.D. from Stanford University. His honors include a Brazilian National Research Council Fellowship and an Alexander V. Humboldt German Research Fellowship. He was on the faculty at Yale and came to the University of Connecticut in 1966. George's mathematical models and techniques for following complicated nuclear reactions with many possible outcomes have been used repeatedly to explain experimental results. He has been a devoted mentor to many young visiting scientists, particularly from developing countries. Teaching many different courses and originating several, particularly involving computer use in modeling, have been among his foremost pursuits. His nuclear knowledge has led him to be a strong spokesman for peaceful uses of nuclear energy and for the dismantling of nuclear weapons by all countries possessing them. His activities have been done through peace organizations such as Citizens for Global Solutions (formerly the World Federalist Association) and the United Nations Association. His talks on Einstein's worldview and on climate change have benefited UConn's lifelong learning program. In 2009, George remarried and also retired. We wish him and his wife, Joyce, a happy future.

We welcome Peter Schweitzer, who joined the UConn Physics faculty in 2008, from the University of Bochum, Germany. Peter is a theoretical nuclear physicist whose work is closely related to the experimental and theoretical research programs at the Thomas Jefferson National Accelerator Facility (JLAB) in Newport News, Virginia. Richard Jones and Kyungseon Joo also work at JLAB, performing experiments in nuclear physics. Peter studied in Bochum, both for his undergraduate and Ph.D. work, completing his Ph.D. in 2001 with Professor K. Goeke (Bochum) and Dr. C. Weiss (JLAB). He then did postdoctoral work in Pavia, Italy, before returning to Bochum as a research associate. Peter has a wide variety of interests in particle and nuclear physics, ranging from hadronic structure to deep inelastic scattering and effective chiral theories. (See "The Spin Structure of the Nucleon. New Approaches to Old Questions" in this issue.)

Peter, his wife and two young children arrived in Storrs from Germany mid-September 2008 and have been busy settling in to their new life in the U.S. We hope they are as happy to be here as we are to have them.

Anne and Winthrop Smith arrived in Storrs from New York City in 1969, and since that time both have contributed significantly to our department, the University, the community and beyond. They have hosted many guests for the department and participated in physics meetings on nearly every continent. Prior to joining our department, Win was an assistant professor at Columbia University, having held earlier positions at the University of Colorado and the Joint Institute of Laboratory Astrophysics (JILA) in Boulder. He graduated (magna cum laude) from Amherst College and received his Ph.D. in physics from MIT.

Win is an outstanding teacher and has served on and chaired many departmental and university committees. He is an internationally recognized scholar and has enjoyed major collaborations in the area of atomic collisions and spectroscopy with many laboratories, including, most recently, the Caltech-NASA Jet Propulsion Laboratory; the Institute for Theoretical Atomic and Molecular Physics of the Harvard/Smithsonian Center for Astrophysics; MIT; the Max-Planck-Institute f. Quantenoptik, Garching bei Muenchen, Germany; and the University of Aarhus, Denmark. Earlier collaborations included research at Stanford Research Institute, Stanford University, and at the Lawrence Livermore, Los Alamos and Oak Ridge National Laboratories. Win is a Fellow of the American Physical Society (he served as Secretary-Treasurer of two divisions of APS, DAMOP and DLS, and chaired the Division of Laser Science in 2002-2003) and was a recipient of a Humboldt Senior U.S. Scientist Award for study in Germany. He was selected to be a Program Officer at the National Science Foundation and has served on and chaired a number of local and national committees, including those that hosted international meetings at Storrs. Win co-chaired the International Conference on Atomic Physics (ICAP 2008) with

Carol Artacho-Guerra, Sarah Lamb and Cynthia Peterson at the 2010 Commencement reception.

colleagues Phil Gould and Robin Côté in Storrs last summer. He recently shared a NASA grant for astrophysical research, and is to be congratulated for a new 3-year NSF grant entitled "Sympathetic Cooling and Collisions of Atomic and Molecular Ions with Ultracold Atoms."

It is clear that Win is too involved in the department for a real retirement. We hope he can find time for travel, to enjoy his vacation home in the White Mountains of New Hampshire, and to sing in the Hartford Chorale!

Ralph Snyder is retiring from the Physics Department after 32 years of teaching and research at the Hartford regional campus. Ralph did his undergraduate physics studies at Princeton, receiving his M.A. and Ph.D. from Harvard under David Layzer, a well-known astrophysicist. Ralph collaborated on several papers on atomic structure and collisions with Sir David Bates as a Research Fellow and Lecturer at the Queen's University of Belfast, later serving as a visiting Assistant Professor at the University of Kentucky and NRC Research Associate at Air Force Cambridge Research Laboratory before coming to UConn in 1977. Soon after his arrival, he began a fruitful multi-year collaboration on atomic collision theory with Storrs colleagues Arnold Russek and Edward Pollack and their students, focusing on dissociation and energy loss studies of three-body colliding atomic systems. His liberal arts background perhaps led him to investigate broader topics including an early simple quantitative model of global warming (1992) and a tutorial article in the American Journal of Physics on Kepler's Laws and the Earth's eccentricity. He has been an active participant in the programs and social concerns of the Storrs Quaker Meeting.

He will be remembered warmly by the hundreds of students he has taught at the Hartford campus over more than three decades. We wish him a satisfying and happy retirement.

A new member to our department in 2008 was Jianghu (John) Yang. Dr. Yang joined us as a postdoctoral fellow in the nuclear physics research group led by Prof. Richard Jones. John brings expertise in the area of Computer Science, both from academia (2006 Ph.D. in CS, Fudan University, China) and industry (Kingstar Group, 2007-2008). His position was funded by the National Science Foundation under a competitive interdisciplinary grant program entitled Physics at the Information Frontier, which seeks to stimulate interactions between forefront research in the physical and information sciences. John has specific expertise in computational grids, an emerging technology in information science that is inspired by the electrical power grid. If the dream of the computational grid were realized, scientists and other consumers would be able to allocate specific amounts of storage, bandwidth, and computational capacity adapted to a particular problem, for a specific period of time, without any knowledge of what the physical hardware is, where it is located, or how it is managed. Over the past two decades, the quantity and complexity of data being collected and analyzed by scientific experiments has surged ahead, growing even faster than the processing power and storage capacity of the computers used to process them. The Open Science Grid (www.opensciencegrid.org) is a large cooperative of universities and research labs across North America seeking to aggregate their institutional IT resources within a scientific grid that is usable by all of its members. Under John's direction, the UConn group is contributing to the expansion of the OSG and pioneering its use in the analysis of experimental nuclear physics data. Together with postdocs at Carnegie Mellon University and Indiana University, John is breaking new ground in applied computer science, and at the same time, making an important contribution to understanding the fundamental physics of the strong nuclear force.

In Memoriam

Lt. Col. Samuel S. Humphrey (4/24/23 – 7/10/09)
We are saddened to report the July 10, 2009 loss of a loyal physics friend: After interrupting his education to serve in World War II, Lieutenant Colonel Samuel Humphrey graduated with his degree in physics from UConn in 1948. After being recalled for service in Korea, he eventually retired from the military in 1971. A colorful figure, he was on the first plane to fly over Hiroshima after the bomb to measure radiation levels, taught physics and math at Canton High School, ran a Christmas tree farm, was a 24-year volunteer fireman, a 40-year member of the National Ski Patrol and served the Town of Canton in many capacities, including first selectman. Sam, and his wife Mary, joined us for the 50th anniversary celebration of the founding of our Sigma Pi Sigma chapter, of which he was an inaugural member, and followed up with regular attendance at the Katzenstein Lectures and dinners. Sam and Mary added a touch of class to these events.

Alumni News

Where are they now??

Frank J. Owens received a Ph.D. in physics from the University of Connecticut in 1968, under the supervision of Professor Otis R. Gilliam. Following his years at UConn, he joined an Army materials laboratory in New Jersey which provided the opportunity to be involved in many exciting fields in solid state physics. Dr. Owens has published over 160 papers in refereed journals on condensed matter physics, chemical physics and materials science. He is a fellow of the American Physical Society and obtained several Army Research and Development Awards. His present research interests include carbon nanotubes, semiconductors and nanostructures. He served as an advisor to a number of National Research Council postdoctoral fellows over the years. One of them, Andrew Rinzler, Ph.D. UConn '91, is now a Professor at the University of Florida. Dr. Owens currently has a faculty appointment at Hunter College of the City University of New York where he is continuing his research in nanotechnology and enjoys reading news of his former professors and classmates.

Two recent graduates of the UConn Physics Department, Dr. Ryan Coffee and Dr. Li Fang, have found positions at the world's first X-ray free electron laser housed at the Stanford Linear Accelerator. Working with coherent 1 keV photons in a 4 femtosecond laser pulse, two groups studied the core hole ionization of nitrogen molecules. Both Coffee and Fang are authors on three Physical Review Letters appearing this summer on the work. Fang is the first author on one. Both Coffee and Fang were students of Professor George Gibson while at UConn.

ENDOWMENT NEWS

The Physics Department at the University of Connecticut gratefully acknowledges your ongoing, generous endowment contributions which continue to enhance our mission. The endowment of Drs. Henry and Constance Katzenstein will once again bring a Nobel Laureate to campus for the twelfth annual "Katzenstein Distinguished Lecture" this fall. This fund also provides a monetary prize for the best undergraduate physics paper of the year (see related articles in this issue).

We are happy to announce a new endowment in Physics which supports the missions of the department and university by providing fellowship support for graduate students enrolled full-time in the Department of Physics in the College of Liberal Arts & Sciences. The "Anne and Win Smith Fellowship" fund was initiated by them to celebrate Win's retirement (although he is continuing as a research professor). Candidates for the award must demonstrate academic achievement and contributions are matched at 50% by the Provost's office.

The Georgiana and Marshall Walker endowment rewards the student voted by the faculty as the best Teaching Assistant of the year. Congratulations to Brad Moser, the 2008 winner, and to J. C. Sanders, last year's winner.

We have several maturing funds intended to support graduate students doing research. These include the Isaac S. and Lois W. Blonder Graduate Fellowship in Physics (Isaac S. Blonder was our first physics major, B.S., 1938); The Ruth and Paul Klemens Endowment (Paul is currently Emeritus Professor of Physics and was Department Head 1967-74); the Nagavarapu Graduate Award in Physics (Nagavarapu S. Mohan received his Ph.D. in 1975); the Dwight Hills Damon Graduate Fellowship in Experimental Physics; and the Edward Frisius Memorial Fellowship (initiated by his family, which includes Mauricette (Frisius) Stwalley, wife of William Stwalley, the Head of the Department of Physics) are all continuing.

The Edward Pollack Endowment for Physics, initiated by Ed's family, supports an annual distinguished lecture in Atomic, Molecular, and Optical Physics. We were pleased to host Professor Thomas Cravens from the University of Kansas in March and additionally pleased that several members of Ed's family were able to join us.

We are grateful to all of you who contribute to these funds. Many of you respond to the general solicitations sent out by the University; we would be delighted if you used the fund numbers on the next page to direct such contributions to the Physics Department. We appreciate your assistance in supporting and educating our students.

Making a Gift

There are many ways of making a gift including checks, marketable securities, planned or estate gifts, and through payroll deduction for University employees. Checks should be made payable to the University of Connecticut Foundation with a cover note directing your gift. All gifts are eligible for tax deductions as the University of Connecticut Foundation, Inc. is recognized as a 501 (c)(3) non-profit organization. Donors have the option of remaining anonymous if they wish.

SAVE THE DATE

September 24, 2010

Invitations for the Katzenstein dinner have been mailed. If you are interested in attending, but did not receive your invitation, please contact Kim Giard at 860-486-4924, or email: Kim.Giard@UConn.edu.

STAY IN TOUCH

We've added a feature to our departmental Web page that assists our Alumni Office in updating their records. We would like to start an email distribution list for our Physics Alumni so that we can notify you promptly when we have important news to share. Please help us by logging onto our site at http://www.physics.uconn.edu and clicking onto the link for Alumni. This will take you to a page that requests your current contact info including your email address. There is also a place for any comments you would like to send us. We want to keep in touch and to keep you posted. Thank you for your assistance.

I/We would like to support the Physics Department programs.
Please direct my gift of $ _____ to:

- Anne and Win Smith Fellowship Fund (22662-2014)
- Edward Frisius Memorial Fellowship (22520-2014)
- Space-Time Twisting Light Project (22398-2014)
- Time Domain Fund (22457-2014)
- Dwight Hills Damon Graduate Fellowship in Experimental Physics (31028-2014)
- Edward Pollack Endowment for Physics (30958-2014)
- Ruth and Paul Klemens Endowment (30951-2014)
- Kurt Haller Endowment for Physics Research and Graduate Education (30911-2014)
- Marshall and Georgiana Walker Graduate Award Fund (30876-2014)
- Nagavarapu Graduate Award in Physics (30723-2014)
- Katzenstein Distinguished Lecture Series Endowment (30438-2014)
- Charles Swenberg Memorial Endowment (30641-2014)
- Isaac S. and Lois W. Blonder Graduate Fellowship Endowment (30743-2014)
- Physics Department Unrestricted Fund (20351-2014)
- Physics Olympiad (Payable to "UConn" and mailed to Dept. of Physics (20352-2014)

I work for a matching gift company. The form is enclosed.
My company is: _____

_____

_____

Phone/fax/email_____

Should you wish to support one of these efforts, please send your contribution directly to:
The University of Connecticut Foundation
2390 Alumni Drive, Unit 3206
Storrs, CT 06269-3206

Thank you for your support!

Any news about yourself that you would like to share? We have enjoyed the unsolicited mail we receive as a result of our newsletters, so now we are actively soliciting. Please send suggestions to David Markowitz, Editor, at the Department Address.